Enhancing Critical Thinking Through Multimodal Texts: An Experimental Study

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ABSTRACT

Critical thinking abilities are among the most crucial to have in this day and age of increased globalization. As a result, these abilities are taught at higher education institutions all over the world with utmost emphasis. Teaching English as a Second or Foreign Language is one of the numerous fields in which these abilities are integrated. Critical thinking abilities are discovered to be difficult to teach, nevertheless. Conventional approaches used to teach the skills frequently show to be ineffective, particularly when it comes to guaranteeing cross-domain transfer. The effectiveness of multimodality as a teaching strategy and as content for critical reading and thinking abilities is covered in this paper. The outcome demonstrates the use of multimodality enhance students' attainment of critical thinking skills.

Keywords: Critical Thinking Skills, Multimodality, Multimodal

INTRODUCTION

At the postsecondary level, critical thinking instruction is essential for equipping students to navigate the intricacies of contemporary life. Due to the rapid development of technology and the volume of information available, students need to be prepared to critically examine, assess, and synthesize data (Facione, 2020). Students who engage in critical thinking are able to tackle challenges methodically and creatively, which develops decision-making abilities that are critical in both personal and professional contexts (Paul & Elder, 2019). Additionally, fostering lifelong learning at the tertiary level encourages students to continue being curious and reflective long after completing their official education (Brookfield, 2017). Teaching these abilities becomes essential to producing well-rounded graduates who can meaningfully contribute to society as higher education places more emphasis on developing independent and critical thinkers (Ennis, 2018).

Globally, educational frameworks are starting to take this change into account by highlighting critical thinking as a necessary educational goal (OECD, 2022). In its assessment frameworks, for example, the Organization for Economic Co-operation and Development (OECD) has emphasized the importance of critical thinking, noting that students possessing these skills are better equipped to take on difficult problems and draw well-informed conclusions (OECD, 2022). Therefore, it is essential that postsecondary students acquire critical thinking skills so that they are able to evaluate credibility of information and make informed decisions on what is valid information.

Unfortunately, tertiary students frequently encounter difficulties when attempting to use critical thinking

skills because of their lack of preparation and lack of exposure to these said skills. Furthermore, moving from secondary school to a university atmosphere can be daunting, as students must adapt to new expectations regarding academic literacy and the depth of reasoning required to succeed (Anjaniputra, 2020). Research attested that some students enroll into universities with a strong foundation in critical thinking while others lack it, which causes a big difference in how well they can evaluate, analyze, and synthesize material (Van der Zanden et al., 2020).On the same vein, Clark (2022) posited that postsecondary education frequently necessitates a greater degree of independent and interdependent critical thinking, which require students to not only critically analyze and question their own presumptions; but also to participate fully in academic discourse and work well with others.

Weiten (2004) echoed this in his testimony that students frequently lack the attitudes and skills required for critical thinking. One strategy to solve this issue at the postsecondary level is to expressly educate critical thinking. Students who receive specific instruction in critical thinking acquire many key competences that improve their academic and professional performance. These abilities include the ability to assess arguments by dissecting conclusions from premises, distinguishing between conclusions drawn from evidence and assumptions, and.identifying logical fallacies, Additionally, students gain competence in determining the reliability of sources, which is essential for interacting with academic materials and carrying out research. Critical thinking instructions also improves students' capacity to integrate knowledge from various sources, which helps them create well-supported claims and answers to challenging issues. Furthermore, this training encourages introspective thinking, which enables students to assess their prejudices and enhance their decision-making techniques. Hence, they attain proficiency in applying ethical principles and logical thinking to real-world situations, equipping them for productive engagement in scholarly and professional settings (Van der Zanden et al., 2020).

LITERATURE REVIEW

A. Problems in Teaching Critical Thinking Skills

Even though experts largely agree that teaching critical thinking is possible, it is not a simple task. According to Hairuzila, Hazadiah, and Normah (2009), teaching of the skills is hampered by the attitudes of the students.

Students' negative attitudes are caused by their ignorance of the significance of the skill, which results in their lack of interest and attention to the said skill development. The teachers' ignorance of the different teaching approaches that might be applied to incorporate the development of these abilities into their lessons is another obstacle. Sulaiman et al. (2008) claimed that due to their accustomed passive learning style, tertiary students find it challenging to integrate critical thinking skills into their education today. To encourage critical thinking, an approach that is learner-centred, provides optimal learning environment and considers factors that give students agency is required. Additionally, they emphasized the importance of giving students a voice so they could express their ideas during class discussions and assignments.

Case (2004), on the other hand, emphasized how crucial language is to understanding, evaluating, and tearing apart arguments. He states that ideas like arguments' validity, credibility, truth, and soundness, as well as different informal fallacies, are examples of linguistic aspects in critical thinking. Given this perspective, it is not surprising that critical thinking has been incorporated into ESL instruction.

Furthermore, there is a growing acceptance that ESL curriculum need to place importance on higher-order cognitive skills, especially critical thinking, and go beyond simple language acquisition as the global job market and educational systems continuously evolve. In order to develop linguistic competency and the intellectual autonomy vital in today's complicated environment, critical thinking—the capacity to collect, evaluate, and synthesize evidence in order to form well-reasoned conclusions—has become increasingly

important (Paul & Elder, 2023).

B. Critical Thinking in ESL Curriculum

Studies show that incorporating critical thinking into ESL lessons increases students' general language proficiency as well as their cognitive capacities. Research has indicated that critical thinking facilitates a more profound interaction with language resources, resulting in enhanced understanding and communication abilities (Liu, 2021). Even with these advantages, integrating critical thinking techniques into ESL instruction still presents substantial obstacles. Teachers frequently encounter challenges with curriculum development, evaluation techniques, and the requirement for professional growth (Smith & Johnson, 2021). It is imperative that these obstacles be addressed while taking advantage of the chances to enhance ESL instruction in order to equip students to prosper in a world that is changing quickly.

Santhini and Ravichandran (2010) investigated the application of multimodal techniques in fostering critical reading concepts and an appreciation of literature. The three presumptions that served as the foundation for their study's design are as follow: –

1. Not every learner uses a single mode of instruction to reach meaning-making.
2. It is not feasible to fully comprehend theoretical and conceptual ideas with a single modality
3. A multimodal approach can help learners who struggle with language develop theoretical and conceptual knowledge.

Additionally, they proposed that delivering information in a monomodal or sole modality makes it harder to hold students' attention and restricts their comprehension of important ideas. The results of their investigation demonstrate that the utilization of multimodality draws students' attention, improves their comprehension of critical concepts and theory, thus making learning more pleasurable and engaging for them.

Unfortunately, there is currently a dearth of research on effective teaching strategies or approaches that can be used to teach critical thinking as a component of an ESL curriculum. Using multimodal texts in the classroom is one approach to potentially teach the skills.

C. The Use of Multimodal Texts in Teaching Critical Thinking Skills

The term "multimodality" refers to the intricate ways in which meaning is expressed and shaped by the combination of semiotic resources (such as fonts, intonation, and colors), media (such as a book or screen), and modes (such as speaking, writing, image, and music) (Kress, 2003). Multimodal texts are those that combine numerous "modes" that coordinate with one another to communicate meaning. They can be produced on paper or a computer screen, and they can have text or spoken words, sound, static or moving graphics, and more. Children regularly encounter print multimodal texts in their educational environments, such as picture books, information books, newspapers, and magazines. Multimodal texts that are not in print form include films, videos, and increasingly texts that are viewed on electronic screens (Walsh, 2004).

Cope and Kalantzis' Model of Multimodal Design, which is depicted in the figure below, provides the greatest illustration of the several components and modalities of meaning that combine to form a multimodal text. Linguistic design, visual design, auditory design, spatial design, and gestural design were the terms they used to describe the meaning-making processes. A monomodal text, which only has one mode or design, is different from multimodal texts that combine two or more of these modes.

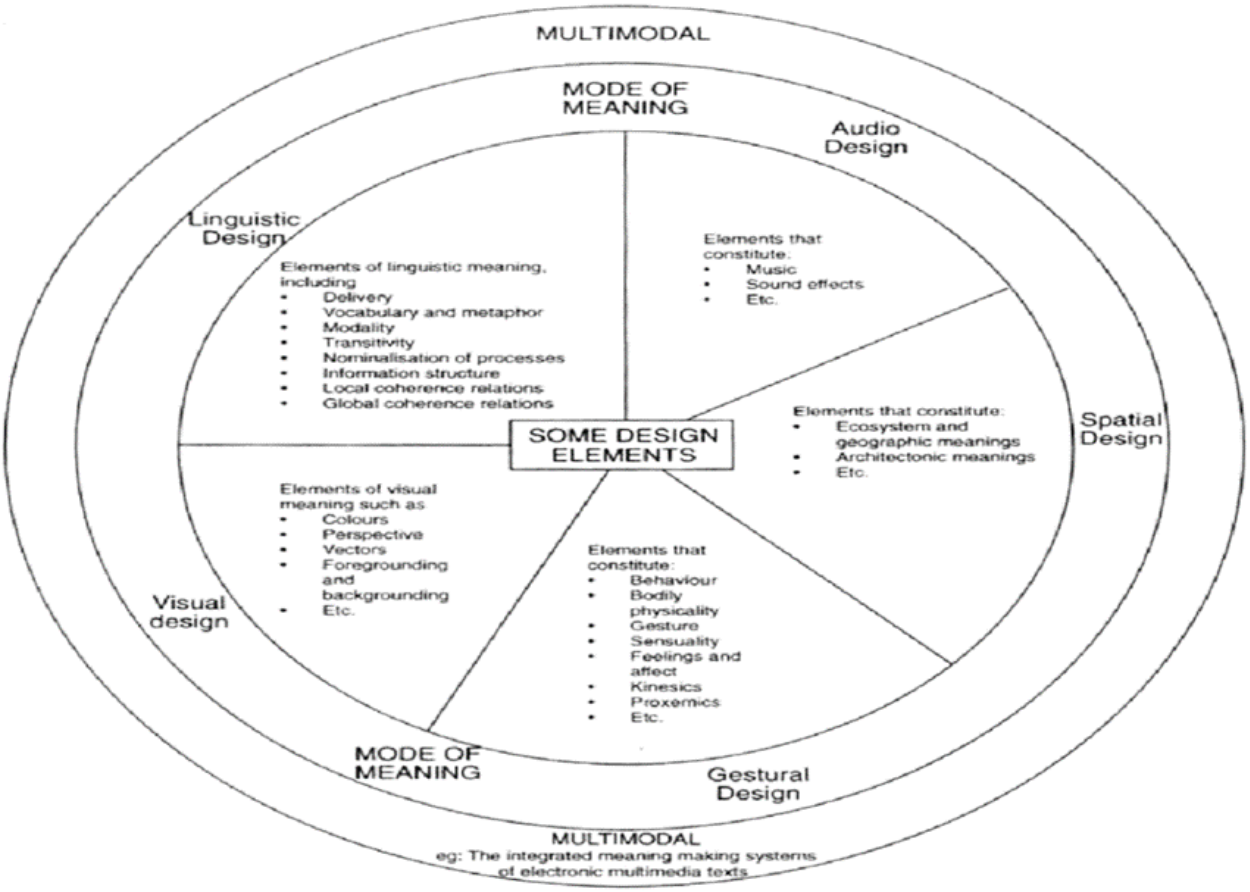

Fig.1: Model of Multimodal Design (Cope and Kalantzis 2000 p.26)

In addition to describing their Model of Multimodal Design, Cope & Kalantzis (2000) stressed the need for students to have "multimodal literacy". This is due to the way technological advancements affect the construction of meaning in communication and the role multiple semiotic modalities now play in the construction. The multiplicity of semiotic modes, or multimodality, has permitted communication to go beyond boundaries of nationality and culture. Thus, learning new "multimodal literacy" is critical to understanding the different complex modes and situations that can influence communication.

Multimodal texts are becoming an effective tool for developing critical thinking skills, particularly when teaching English to students. This approach assists students in acquiring complex cognitive processes by encouraging them to combine and assess information from various sources. For instance, integrating video clips into written materials that go are related to them enables students to compare written and visual narratives, encouraging critical analysis of the ways in which various communication modalities affect comprehension and interpretation (Kress, 2022). Additionally, because multimodal texts may suit different learning styles and demands, ESL students may view critical thinking tasks as more accessible and interesting (Cope & Kalantzis, 2021). Through navigating and interpreting multimodal, complex content, students gain a more nuanced comprehension of the subject matter, which improves their capacity to evaluate and integrate knowledge critically.

Previous research validated the usefulness of multimodal texts in improving critical thinking abilities, especially in relation to ESL instruction. For instance, Chen and Yang (2021) found that ESL students who used multimodal publications, such as multimedia presentations and interactive digital resources, showed significant enhancements to their ability to exercise critical thinking. They reported that these students showed better performance as they were able to assess and analyse information from several facets, leading to in-depth understanding and more complex use of language. According to them, incorporating visual

components like infographics and video clips in language training aids students in connecting ideas and developing stronger critical thinking skills. The application of the method allowed students to interact with the content more deeply and consider the ways in which interpretation and meaning might vary depending on the communication medium.

The results of their investigation provide credence to the researcher's decision to use multimodal texts to teach critical thinking to students at a particular university in the northern region of Malaysia. Morever, at present, there is still limited research on the feasibility of using multi-modal texts in teaching critical thinking skills.

D. Purpose of the Study

The purpose of this research is to investigate whether multimodal texts can be used in the teaching of critical thinking as a means to improve students' understanding of the concepts. It seeks to examine the effect of using multimodal texts in improving their understanding of critical thinking concepts.

E. Research Objectives

The objective of the research is

1) To explore whether the use of multimodal texts helps to improve students' achievement in the critical thinking course.

F. Research Questions

The research aims to find the answer to the following question: –

1) Does the use of multimodal texts help students to gain better understanding of critical thinking?

Research Hypothesis

The research hypothesis related to Research Question 1 is as follows: –

Research Question 1: Does the use of multimodal text help students to achieve better understanding of critical thinking?

Ho: There is no significant difference in achievement between the students who learn through the use of multimodal texts (experimental group) and the students who learn through the traditional method (control group).

Ha: There is a significant difference in achievement between the students who learn through the use of multimodal texts (experimental group) and the students who learn through the traditional method (control group).

METHODOLOGY

A. Sample and Data Collection

For the purpose of the research, a quasi-experimental action research, involving two intact classes of Introduction to Critical Thinking in a selected university in the North of Kedah, was conducted. The first class, DIA 5A, was assigned as the experimental group (n= 31) and the second class, DIA 5B, (n=30) was assigned as the control group. As the research was experimental in nature, several selected variables were

tested. The independent variable manipulated was the use of multimodal texts in teaching critical thinking, whereas the students' achievement in the critical thinking course was the dependent variable to be measured.

The researcher conducted a pre-test before the students commence with the course. The test incorporated questions on identifying claim and premises in argument, identification of different types of argument, identification of linguistic persuaders and fallacies in argument as well as argument analysis and argument comprehension. From the pre-test data, the researcher used the Levene's Test for equality of variances to determine whether the control group and the experimental group were homogeneous and equivalent in their existing conditions. After the pre-test, as a participant of the study herself, the researcher administered the lessons utilizing multimodal texts to the experimental group.

The researcher prepares the lesson plans and activities involving the use of multimodal texts and conducted the lessons using multimodal texts. Multimodal texts are used in the experimental lessons as teaching tools as well as educational materials. The experimental lessons also involve comprehension and production of multimodal texts by the students. Firstly, in teaching the experimental group, multimodal texts are used to illustrate concepts in critical thinking. Video clips downloaded from you tube depicting campaigns on current issues like global warming, objection to death penalty and Earth Hour are used to illustrate the different types of arguments used by writers or arguer. The video clips are embedded in lectures delivered via the use of power-point. The clips on these topics are chosen as they simulate the real-world situation.

Apart from that, lessons on fallacies in arguments and linguistic persuaders incorporate the use of authentic advertisements from both print and electronic media. These advertisements contain fallacies such as bandwagon argument, scare-tactics, slippery slopes and false analogy and make use of linguistic persuaders such as stereotype, loaded questions and emotive language. Video-clips containing campaign advertisements aired during the US presidential race between Barrack Obama and John McCain were also used to show how fallacies in arguments are often utilized in politics. Some of the clips contain personal attacks, appeal to fear and prejudice as well as weak analogy. Commercial advertisements and political advertisements were used as these are two fields where persuasive arguments are often used. This is supported by Paillotet, (2001) who state that media and advertising construct the real and virtual world, thus influencing attitude, values and lifestyles as well as shaping the ways people socialize.

Students also engage in group works in which they analyzed multimodal texts depicting argument on various issues such as the idea of eating kangaroo meat as an alternative to reduce the environmental problems caused by cattle and sheep farming in Australia and PETA video campaigns against cruelty to animals. From time to time, students are also required to do presentations incorporating multimodal texts. This is so that peer- to peer interaction is increased alongside student-teacher interaction. The teacher meets the students thrice a week and each class last for two hours. Lessons utilizing multimodal texts are carried out at least twice a week for a period of 8 weeks. All in all, students are exposed to 16 lessons or 32 hours of lessons that utilize multimodal texts.

The control group, on the other hand, was taught the traditional way by another lecturer. At the end of the treatment, post-test was administered to gauge students' achievements in the critical thinking course.

The research used several research instruments, namely the pre-test and the post-test. For the pre-test, the instrument used was an examination paper containing 2 parts. (Appendix 1). The first part contained five main questions. The first question consisted of three short passages and required students to identify claims and premises in argument. The second question required identification of claims and objections to the claims. The third question required students to identify the types of deductive or inductive reasoning used in the arguments. On the other hand, the fourth question was on identification of linguistic persuaders while questions five tested students on fallacies of reasoning. The second part contained an argumentative passage on the issue of National Service Training and students were required to answer four open-ended questions.

The question paper was set by the researcher herself based on the course content. The same set of questions was re-administered to the students upon completion of the experimental and traditional lessons. However, the sequence of the questions was changed so that the post-test would not have the exact layout as the pre-test.

The researcher constructed the tests herself instead of using more established testing instruments like California Critical Thinking Skills Test (CCTST). The rationale for doing so was, she wanted to use a testing instrument that reflects and incorporates the course content of Introduction to Critical Thinking. In addition, she found that the language difficulty level of tests such as CCTST to be unsuitable for the participants' level of English Language proficiency. To ensure the reliability of the pre and post-test, the test papers of both the experimental and control groups were marked by two examiners who are the researcher and the lecturer teaching the control group. The scores given by the two examiners were added and the average scores were used for both the pre and post-tests for the control and experimental groups.

The analysis of data was quantitative in nature. The quantitative data was processed using the SPSS 22. The mean score of the students' achievement in both pre and post tests were presented and compared. Independent samples t-tests were conducted to determine if there is any significant difference in the achievements of both the experiment and control groups in both tests. Paired samples t-test was also conducted to compare differences in gain scores between the pre-tests and post-tests scores for the control group and the experimental group.

RESULTS

A. Students' Achievement in Critical Thinking

A pre-test was administered to both groups prior to the teaching of critical thinking course, followed by a posttest after the end of the course. An independent sample t-test was carried out to compare the mean score of the control and experimental group in the pre-test. Table 1 shows that the mean score in the pre-test for the control group is 17.14 (M=17.14, SD=2.96), whereas the mean score in the pre-test for the experimental group is 15.70 (M=15.70, SD 3.68).

	group	N	Mean	Std. Deviation	Std. Error Mean
pretest	dia5b	30	17.139	2.9596	.6976
	dia5a	31	15.700	3.6792	.8227

Table1: Group Statistics of Mean score in the Pre-test for Control and Experimental Group

Though the mean score in the pre-test for the experimental group was slightly lower than the mean score of the control group, the difference is not significant as suggested by the result of the independent t-test shown in Table 2. The Levene's test for equality of variances shows that $F = 0.451$ and $p = 0.506$ proving that the variances of both groups are equivalent. This proves that both groups are homogenous in their critical thinking achievement.

In addition, the independent sample t-test shows the mean score for control group, (M=17.14, SD=2.96) and the experimental group, (M=15.70, SD=3.68), $t(36) = 1.32$, $p = 0.196$. This means $p > 0.05$, showing that there is no significant difference in the mean score of the pre-test for the control and experimental groups. Therefore, it can be concluded that at the beginning of the research, the students have equal ability in critical thinking as suggested in the result of their pre-tests.

Pre-test	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.451	.506	1.319	36	.196	1.4389	1.0912	-.7742	3.6520
Equal variances not assumed			1.334	35.584	.191	1.4389	1.0786	-.7496	3.6273

Table 2: Independent Sample t-test for the Mean Score of the Control and Experimental Group in The Pre-test

B. Result of the paired-sample t-test

To further affirm the findings as discussed above, paired sample t-test was conducted to determine whether there is any significant difference in the mean score for the pre-test before the lessons utilizing multimodal texts and the mean-score of the post- test after the lesson using multimodal texts for the experiment group. The result (refer to Table 3) shows that for the pre-test the mean score for the experiment group is 15.70 (M=15.70, SD= 3.68) and the mean score increases to 29.43 (M=29.43, SD =3.27) in the post-test.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pre5a	15.7000	31	3.67924	.82270
	post5a	29.4250	31	3.26978	.73114

Table 3: Paired Sample Statistics Showing the Mean Scores for the Experimental Group in the Pre and Post Test

The result of the paired sample t-test (shown in Table 4) indicates that there is a significant difference in the mean score for pre-test (M=15.70, SD=3.68) and post-test (M=29.425, SD=3.27) conditions; t(19)= -14.71, p = 0.000. P < 0.05 proves a significant difference between the two scores. The large gain-score of 13.725 affirms that the use of multimodal texts helps students achieve better in critical thinking.

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 pre5a - post5a	-13.72500	4.17220	.93293	-15.67765	-11.77235	-14.712	19	.000

Table 4. Paired Sample T-Test for The Mean Score of The Experimental Group During the Pre and Post-Test

A paired sample t-test was also conducted to determine whether there is any significant difference in the

mean score for the pre-test before learning critical thinking and the mean-score of the post- test after the lessons using the traditional method for the control group. The result (refer to Table 5) shows that for the pre-test the mean score for the control group is 17.14 (M=17.14, SD= 2.96) and the mean score increases to 21.64 (M=21.64, SD =6.17) in the post-test. Though there is an increase in the mean score of the pre and post-test, the gain-score of 4.50 can be considered minimal.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pre5b	17.1389	30	2.95956	.69757
	post5b	21.6389	30	6.17110	1.45454

Table 5: Paired Sample Statistics Showing the Mean Scores for the Control Group in the Pre and Post Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 pre5b - post5a	-4.50000	6.26850	1.47750	-7.61725	-1.38275	-3.046	17	.007

Table 6: Paired Samples Test for the Mean Score of the Control Group during the Pre and Post-test

The result of the paired sample t-test (shown in Table 6) indicates that there is a significant difference in the mean score for pre-test (M=17.14, SD=2.96) and post-test (M=21.64, SD=6.17) conditions; t(17)= -3.046, p = 0.007. P < 0.05 showing there is a significant difference between the two scores. This shows that after receiving explicit instructions in critical thinking, the students improve in their achievement. However, the students who receive the instructions using multimodal texts achieve significantly higher.

DISCUSSION

The purpose of this study is to examine how well multimodal texts teach critical thinking to students at a higher education institution. Thirty-one students in the experimental group participated in sixteen lessons that used multimodal texts. The study's conclusions showed that using multimodal texts enhances students' critical thinking proficiency. The summary of the research findings' conclusion will be covered in the part that follows. Based on the study questions, the conclusion will be discussed independently.

A. Research Question 1

The study was conducted to find answer to research question 1, *'Does the use of multimodal texts help to improve students' achievement in critical thinking?'.* To answer the question, a pre-test and post-test was administered prior to and after the students receive explicit instructions in critical thinking, with the multimodal texts used in the instructions for experimental group and traditional approach for the control group. A Levene's test of homogeneity shows that the students have equal variance, the independent samples t-test also showed no significant difference between the students score, proving that at the beginning of the treatment, students from both groups have equal ability in critical thinking.

The independent sample t-test ran after the post-test showed a significant difference at the level of p < 0.05 between the mean scores of the two groups. The mean score of the experimental group (M = 29.42, SD = 3.27) is higher than the mean score of the control group (M=21.62, SD= 6.17), t(36)= -4.78, p = 0.00. This

led to the rejection of null hypothesis that *'There is no significant difference in achievement between the students who learn through the use of multimodal texts (experimental group) and the students who learn through the use of traditional method (control group'* and the confirmation of alternative hypothesis that *'There is a significant difference in achievement between the students who learn through the use of multimodal texts (experimental group) and the students who learn through the use of traditional method (control group'*. It can be concluded that the use of multimodal texts does help to improve students' achievement in critical thinking.

Following this, paired samples t-tests were conducted to determine whether there were any significant differences in the mean scores for both experimental and control groups. The statistics yield showed that there were significant differences in the mean-scores for both groups. This led to the conclusion that when given explicit instructions, students improve in their critical thinking ability. This finding validates earlier findings from the research conducted by Ruff (2005) that shows explicit instructions on critical thinking improve students' critical thinking ability.

In addition, the comparison of the gain score showed that the gain score of the experimental group at 13.725 is higher than the gains-core of 4.5 from the control group. It can be deduced that explicit instructions improve students' achievement in critical thinking but instructions that make use of multimodal texts are more effective than instructions using the traditional approach.

B. Implications of the Study

The research brings about several implications for the teaching of critical thinking as part of the ESL curriculum.

This study has validated previous studies that found the explicit teaching of critical thinking skills is effective in improving students' achievement in critical thinking and reinforce Scriven's (2003) beliefs that skills associated with critical thinking can be learnt as a subject of its own.

This study has brought also to light that the use of multimodal texts can help to improve students' achievement in critical thinking. The use of multimodal texts helps the students to understand the concepts better and helps to create interest towards the learning of the course. Hence, the teachers of critical thinking courses should consider incorporating the use of multimodal texts in their lessons. Teachers can utilize different approaches such as using videos or animation, multimedia presentations and online applications which are available these days as their approaches of using multimodal texts in class. Both participants (students and teachers) in the study by Bougherara and Khaldi (2021) expressed support for multimodality as a practical approach for promoting critical thinking skills.

Teaching should also be explicit and systematic. Thus, it can be made more systematic by incorporating multimodal texts while teaching critical thinking skills. Multimodal texts can be used to illustrate concepts in critical thinking and different types of arguments used by writers or speakers. Video clips on topics depicting contemporary global issues can be embedded in lectures as they simulate the real-world situations.

Apart from that, lessons on fallacies in arguments and linguistic persuaders can incorporate the use of authentic advertisements and political campaigns from both print and electronic media to give examples of fallacies such as bandwagon argument, scare-tactics, slippery slopes and false analogy and make use of linguistic persuaders such as stereotype, loaded questions and emotive language. Students can also be given group works in which they have to multimodal texts depicting argument on various issues

Lastly, material developers should also consider incorporating multimodal texts into textbooks written for the course on critical thinking. At present, many of the books are in printed form and include singular

modality; at best, they may have a graphical image or two.

RECOMMENDATION FOR FURTHER RESEARCH

The study's conclusions compelled the researcher to take into account a few recommendations or ideas for further research on the use of multimodal texts in the teaching of critical thinking in ESL curricula in particular and on the teaching of critical thinking in general.

First and foremost, more study has to be done to ascertain whether or not providing Malaysian university students with explicit teaching in critical thinking as part of their ESL courses is beneficial. Not all tertiary students currently receive instruction in critical thinking as part of the ESL program. In fact, Harell (2007) attested that most undergraduates in colleges all over the world never take any critical thinking courses while in college. In UiTM Kedah itself, the course Introduction to Critical Thinking Skills is not compulsory and decision whether to make students enrol in it lies at the discretion of the respective faculty. As such, only two faculties, the accountancy faculty and law faculty, choose the course as a compulsory course for their students. If explicit instructions are found to be effective, then making it a compulsory course for all may well benefit the students.

Secondly, research done in the area should consider the effect of maturity on students' critical thinking ability. Experts agree that a certain degree of maturity is essential in teaching critical thinking (Kegan, 1994). The participants of this research are part 5 diploma students who display some level of maturity in thinking. This may have been a factor that helps them to learn the skills and concepts in critical thinking. By determining the effects of maturity on the learning of critical thinking, curriculum planner can make decisions on when best to introduce the course to students.

Thirdly the study conducted should be longitudinal in nature and involve a larger sampling. Studying the impact of the use of multimodal texts over a longer period of time, would enable the researcher to determine whether the students' interest in the use of multimodal texts is maintained over time or would they lose interest once the novelty wears off. In addition, conducting the research over a prolonged duration would enable the researcher to obtain more reliable feedback on the students' receptiveness towards the use of multimodal texts in learning critical thinking. Whereas, using a larger sampling would increase the reliability of the research. As posited by Gay, Mills and Airasan (2006), the larger the samples, the greater the reliability of the tests or results.

Lastly, though the research showed that the use of multimodal texts is effective in improving students' achievement in critical thinking, due to time constraint the researcher was unable to analyse specifically in what content areas of the course, the students show improvement. While marking the pre and post-tests papers, she obtained some glimpses into the content areas in which students showed improvement but lack the time to analyse them in more comprehensive and rigorous manner. It would be interesting if a detailed analysis or a qualitative description can be given regarding this issue.

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APPENDIX

Pre test

Name:……..

Class: ……

Part A. Answer all the questions that follow to the best of your ability

1. Read the short passages below and identify the claims and premises for each argument.

a. Knowledge management is increasingly important for business. Without it, resources are wasted. For example, companies often make poor use of the training and experience of their staff, failing to cascade it to their other employees. Furthermore, businesses that do not manage knowledge well may appear less up-to-date, and therefore less attractive, to potential customers. With the growth of electronically accessible information, businesses need strategies to help staff cope emotionally with information overload.

Claim: _____

_____

Premise 1: _____

_____

Premise 2: _____

_____

b. Universities want objective methods of marking students' work, but objectivity is time-consuming. Lecturers spend a great deal of time checking their interpretations of students' answers. As there is only one correct answer for multiple-choice questions, there are no opportunities for subjective judgments, making the system fairer. These tests can be marked at speed, and objectively, by a computer. Multiple choice offers a quicker and fairer way of marking. With increased numbers of students, universities want to make better use of lecturers' time. Therefore, universities should make more use of multiple-choice tests.

Claim: _____

_____

Premise 1: _____

_____

c. It is important that employers in Britain actively encourage older people to remain within the workforce. First, as the population ages, there won't be enough young people entering the workforce to meet the needs of the economy. Secondly, the economy benefits from the skills and experience that older people have accrued over their lifetimes. Moreover, older people often have rare skills and useful attitudes that cannot be taught or acquired quickly.

Claim: _____

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Premise 1: _____

Premise 2: _____

Premise 3: _____

2. The arguments below contain claims and objections. Identify the claim and the objection

a. **Are 'reality' shows good for television?** In recent years the number of 'reality' shows on television has grown substantially. They are cheap to make, and producers argue that viewers want to see 'real people' on their screens. However, critics complain that reality shows are made at the expense of original drama or current affairs programs and that the overall quality of television is being reduced. Consequently, some people argue that reality shows are good for TV because they are cheap and popular whilst others argue that they result in poor quality.

Claim: _____

Objection: _____

b. Of late, many parties have been proposing that Australians should revert to eating kangaroo meat to combat global warming. However, Australia has no culture for the eating of kangaroo meat. It was eaten during the starving tomes of early white settlement but was considered a poor substitute for beef, sheep meats, pork and chickens. Kangaroo meat has been eaten in some restaurants in the State of South Australia for about 20 years. However, the market has remained very small.

Claim: _____

Objection: _____

Hypothetical syllogism	statistical argument	argument from analogy
Causal argument	argument by definition	Argument by authority

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3. Identify the types of argument used in the passages below. Choose the answer from the options given in the box.

a. A marriage is a union that takes place between a man and a woman. Therefore it is not against the constitution to ban gay marriages.

_____

b. Richard Gallagher, Ph.D., the Director of the Parenting Institute at the NYU Child Study Center, warns that we should be concerned about the kind of video games available. According to him, a large number of children and teens are playing increasingly violent games.

_____

c. If Biff wins the election, then he will throw a party at his house tonight. There is no party at Biff's house tonight. He must not have won the election.

_____

d. Since the Mount softball team has won their last 19 games this season (all against highly ranked opponents) and State U has lost 14 straights; it is likely that the Mount will win their game against State U tomorrow.

_____

e. The Mayor did not give the city's firefighters a raise last year when they asked for one. Therefore, the Mayor should not give the city's sanitation workers a raise this year.

_____

f. Rashid isn't allergic to peanuts. I saw him eat a bag of peanuts on the flight from Kuching.

_____

4. Identify the linguistic elements used in the arguments below. You can choose the answer from the options given in the box

dysphemism	stereotype	emotive language	loaded question

a. I fail to see how teaching the NS trainee how to shoot helps to achieve the objectives of national service in the first place. How can the government get away with a program that undermines the very objective they set to achieve? _____

b. It is quite unreasonable to expect women to be employed to read the news. Some of the news is quite upsetting. It isn't all cakes, bazaars and cats stuck up trees. Newscasters often have to report on war, death and political unrest, which require a serious and steady approach.

_____

c. "The punishment of whipping is defined as torture and hence we should not in any way condone it," said Amnesty International Malaysia executive director Nora Murat._____

d. Poor old Skippy – what an utter nightmare! One minute, he's bouncing happily through the outback, ears flapping, tail flopping, with not a care in the world. The next, he's heralded as the latest

superfood – delicious, nutritious and fabulously low fat – the natural solution to global warming, and 20.4 million Australians are being urged to "throw a few kanga bangers on the barbie". _____

5. Identify the types of fallacy committed in each of the arguments below. Choose the answer from the options given in the box.

Questionable cause	false choice	bandwagon argument
false analogy	slippery slope	two wrongs make a right

a. All the other parties change their policies as the wind blows. Only our party has a constant and clear direction. We have our leader to thank for this, as she is the only captain who can steer a clear course through the storms currently facing our country._____

b. 85% of consumers purchase IBM computers rather than Macintosh; all those people can't be wrong. IBM must make the best computers." _____

c. The number of car crimes has increased. There used to be only a few colours of car from which purchasers could choose, now there is much more variety. The wider the choice of car colours, the higher the rate of car crime. _____

d. Senator Walker has argued that we should outlaw terrorist threats on the Internet. This proposal is dangerous and must be strongly resisted. If we allow the government to outlaw terrorist threats on the Internet, next it will want to ban "hate speech" and other allegedly "harmful speech on the Internet. Next the government wants to censor "harmful ideas" on television, radio and the newspapers. Eventually, everything you see, hear or read will be totally controlled by the government. _____

e. Senator Jones shouldn't be blamed for accepting the monetary gift. After all, other senators have done much worse things. _____

f. There was no way the defendant was able to help himself. He had been under excessive strain for some time and his emotions had been building up like steam under pressure. The witness had been goading the defendant, knowing he was likely to get angry. The defendant was like a pressure cooker, just waiting to explode. Eventually, he just reached boiling point and an explosion became inevitable. _____

Part B. Read the passage below and answer all the questions that follow

NS and medical check-up. Will it reduce mortality?

The decision by the National Service Training Department to screen all the 140,000 trainees for the next session of the camp has received mixed reaction from various quarters. On one hand it is encouraging that the department has taken the previous deaths of trainees seriously while on the other hand it is puzzling why it must resort to such a major step that costs a lot of money and manpower.

So far there have 16 deaths among the National Service (NS) trainees since it was started 4 years ago. From the barrage of comments and criticisms from parents in the media we are aware that the majority of parents have expressed not only their unhappiness, displeasure and anger at the way the NS is being run but also their fears of losing their children in the training process.

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Instead of heeding the call of the people to suspend and review the NS, the authorities have suggested medical check-ups for trainees and improving the medical care at the training centres. Certainly, these are commendable measures, but will these measures reduce the deaths at these training facilities?

The causes of the deaths among trainees fall into 3 categories:

1. Accident and trauma. This includes drowning and severe fatal injuries.

2. Infections due to exposure of the trainees to remote areas which harbor rare strains of virulent pathogenic micro-organisms.

3. Unknown causes. They could have asymptomatic congenital cardiac or vascular lesions in the brain or elsewhere. Others include epilepsy and bronchial asthma. These individuals are apparently healthy and asymptomatic under normal circumstances, only to suddenly collapse and die on strenuous physical stress.

Will routine medical screening detect these abnormalities so as to prevent mortality? From experience we know that such check-ups may not. Even sophisticated examinations like CT scans and MRI may not detect them. To detect congenital heart and cerebral lesions we may even need echocardiogram and invasive procedures like angiography. Do we need to go to that extent to detect pre-existing conditions? Who is going to pay for these medical check-ups?

The number of trainees taken by such serious illness is very small. Placing medical officers and nurses round the clock at training camps to cater for this small number will be just a waste of precious manpower and money. The doctors may spend their whole 3 months in the camps without seeing any serious medical problems among the young trainees.

We are repeatedly reminded of the acute shortage of doctors and nurses all over the country at hospitals and health centers, where major ailments are screened for and treated. Wouldn't it be better to place them at these hospitals where they can be of greater service to the people who really need them most?

There is no doubt that the NS helps in fostering racial unity among our children of different ethnicity during the period of training and the months that follow. Does it have the desired long-term effects? In the long term it fails in its noble aim as the children soon return to a real-life environment of racial segregation and animosity in universities and places of work.

Besides the cost and manpower wastage, there are serious doubts as to the effectiveness of the NS programme to fulfill its primary aim of integrating the youth of all races. If the government insists that the NS is good, it should make it optional for those who want it and are willing to pay for it. By doing so it may alleviate the fear and distress among the many who are skeptical of its benefits.

1) What is the writer's main claim in this article and what are the premises provided to support the claim?

a. Claim _____

_____ _____

b. Premises (give at least two)

_____

_____

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_____

_____ _____

_____

2) What is the writer trying to imply when he says that parents fear losing their children in the training process.

_____

_____

3) Why is medical screening not the best way to prevent mortality?

_____

_____

4) According to the writer NS training fails to achieve its aim. What are the reasons given by him to support this claim?

_____

_____